

Application No.: 09/931,347

Attorney Docket No.: 13DV-14035 (21635-0044)

B) AMENDMENTS TO THE CLAIMS

Please enter the following listing of claims to replace the previously submitted claims of the same respective number:

1. (Canceled).
2. (Canceled).
3. (Canceled).
4. (Previously amended) An article protected by a protective coating, comprising:
 - a substrate having a substrate surface; and
 - a protective coating comprising an outer layer deposited upon the substrate surface and having a protective-coating outer surface, and a diffusion zone formed by interdiffusion of the outer layer and the substrate, wherein
 - the outer layer comprises platinum, aluminum, no more than about 2 weight percent hafnium, elements diffused into the protective coating from the substrate, and substantially no added silicon, and wherein
 - the protective coating has an average hafnium composition profile comprising
 - a relatively small first concentration of hafnium in a first depth range adjacent to the protective-coating outer surface,
 - a relatively large second concentration of hafnium, but not exceeding about 9 weight percent, in a second depth range at greater depths than the first depth range below the protective-coating outer surface, and
 - a relatively small third concentration of hafnium in a third depth range at yet greater depths than the second depth range below the protective-coating outer surface.

Application No.: 09/931,347

Attorney Docket No.: 13DV-14035 (21635-0044)

5. (Previously amended) An article protected by a protective coating, comprising:

a substrate having a substrate surface; and

a protective coating comprising an outer layer deposited upon the substrate surface and having a protective-coating outer surface, and a diffusion zone formed by interdiffusion of the outer layer and the substrate, wherein

the outer layer comprises platinum, aluminum, no more than about 2 weight percent hafnium, elements diffused into the protective coating from the substrate, and substantially no added silicon, wherein

the outer layer is substantially a single phase, and wherein

the protective coating has an average hafnium composition profile comprising

from about 0.1 to about 0.5 weight percent hafnium averaged over locations from the protective-coating outer surface to a depth of about 5 micrometers below the protective-coating outer surface, and

from about 1 to about 9 weight percent hafnium averaged over locations from about 10 micrometers below the protective-coating outer surface to about 50 micrometers below the protective-coating outer surface.

6. (Canceled).

7. (Canceled).

8. (Canceled).

9. (Previously Amended) An article protected by a protective coating, comprising:

a substrate having a substrate surface; and

Application No.: 09/931,347

Attorney Docket No.: 13DV-14035 (21635-0044)

a protective coating comprising an outer layer deposited upon the substrate surface and having a protective-coating outer surface, and a diffusion zone formed by interdiffusion of the outer layer and the substrate, wherein

the outer layer comprises platinum, aluminum, hafnium, elements diffused into the protective coating from the substrate, and substantially no added silicon, and wherein the protective coating has an average hafnium composition profile comprising

from about 0.1 to about 0.5 weight percent hafnium averaged over locations from the protective-coating outer surface to a depth of about 5 micrometers below the protective-coating outer surface, and

from about 1 to about 9 weight percent hafnium averaged over locations from about 10 micrometers below the protective-coating outer surface to about 50 micrometers below the protective-coating outer surface, and wherein

the outer layer is substantially a single phase.

10. (Original) The article of claim 9, wherein the substrate is a nickel-base alloy.

11. (Original) The article of claim 9, wherein the article is a component of a gas turbine engine.

12. (Original) The article of claim 9, wherein the protective coating has an average hafnium composition profile comprising

from about 0.1 to about 0.5 weight percent hafnium averaged over locations from the protective-coating outer surface to a depth of about 5 micrometers below the protective-coating outer surface, and

from about 1 to about 6 weight percent hafnium averaged over locations from about 10 micrometers below the protective-coating outer surface to about 50 micrometers below the protective-coating outer surface.

Application No.: 09/931,347

Attorney Docket No.: 13DV-14035 (21635-0044)

13. (Original) The article of claim 9, wherein the protective coating has an average platinum composition comprising from about 20 to about 30 weight percent platinum averaged over locations from about 10 micrometers below the protective coating outer surface to about 20 micrometers below the protective coating outer surface.

14. (Original) The article of claim 9, wherein the protective coating has an average aluminum composition comprising from about 15 to about 25 weight percent aluminum averaged over locations from about 10 micrometers below the protective outer coating outer surface to about 20 micrometers below the protective coating outer surface.

15. (Original) The article of claim 9, further including
a ceramic thermal barrier coating overlying and contacting the protective-coating outer surface.